

V. Cautions in Maintenance

1. Daily average of allowable over voltage is less than 110%. Check if each phase maintain the balance. Especially, a circuit voltage sometimes increases in the case of light load at night. Kvar capacity increases as rate of the square of voltage increase if the capacitor is used under continual over voltage. As a result, the life span is reduced due to increased loss and degradation.

2. Temperature of a capacitor enclosure shall be lower than 55°C (45°C for ambient temperature). If the temperature exceeds 45°C, it must be cool down using forced air cooling or other methods.

3. Check a connector of an electric switch used in a capacitor circuit at least once a year. The capacitor may run in single phase operation if a connector is not perfect or the life span of capacitor may be reduced because incomplete input approves high frequency vibration voltage to a capacitor.

4. There is an error in a circuit if over current, which is 120% higher than the rated current of capacitor, continues to run. Check leading power factors. If there is no error, analyze a current wave form. Installation of a device to reduce harmonics is recommended if an error is found.

5. Inspect current and voltage of a circuit regularly (three phase balance).

Cleaning insulators: at least once a half-year (depending on contamination)

Fastening terminals: at least once a quarter (depending on vibration)

Temperature increase: at least once a month (depending on status of load change)

Capacity and insulation: at least once a year. For insulation resistance, higher than 1000MΩ between a terminal and a ground connection (per a unit) is sufficient.

Warranty Period

A product can be exchanged free of charge within 1 year if it is decided that a defect was caused by errors in production process.

INSTRUCTIONS FOR USING Dry Power Capacitors



- Rated voltage: 50/60Hz, 240~525V
- Connection: 3-phase Internal Delta
- Capacitor capacity: 5~50kVAR
- Maximum permissible current: 1.5In
- Temperature Category: - 25°C to +55°C
- Impregnation: Biodegradable soft resin (non PCB)
- Standard: IEC/EN 60831-1&2



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Please carefully read this manual for complete installation and safe use. Our company makes the best efforts to comply with a quality assurance system based on the requirement of ISO 9001 and supply best quality products for customer satisfaction.

I. Certificate of Inspection Acceptance

1. Electrostatic Capacity: within -5 - +10% of the rated capacity
2. Unbalance Factor between Phases: less than 108%
3. Withstanding Voltage between Terminals: apply for 10 seconds with 2.15 times of the rated voltage.
4. Between Terminal Package and Case: apply 4,000VAC for 60 seconds for a product with higher than 240VAC. Apply 2,500VAC for 60 seconds for a product with lower than 240VAC
5. Insulation between Terminal Package and Case: higher than 1,000M & at DC 500V
6. Loss Factor ($\tan\delta$): less than 0.15% at the rated voltage 50/60Hz

II. Do not install product at the following locations

- 1, A location with ambient temperature exceeding $-25^{\circ}\text{C}\sim+55^{\circ}\text{C}$
- 2, A location affected by salinity
- 3, A location affected by vibration
- 4, A location exposed to rain or water
- 5, A location with high moisture
- 6, A location affected by dew condensation
- 7, A location with iron and dust
- 8, A location exposed to direct sunlight
- 9, A location containing corrosive gas

III. How to install a capacitor

1. The product must be fixed with an M12 bolt when installed, tighten with appropriate tightening force (less than 25kgf/cm³. M12 bolt with additional grounding function.
2. Do not place the product on its side or hang it upside down as it is designed to install on the ground or mount on a wall.

3. If they are used as a group, the distance between unit capacitor and from the ground shall be more than 30mm and 500mm, respectively for good ventilation.

IV. Connection method

1. Do not apply excessive power to connections or joints of electric wires.
2. Connection of Wires:
 - 2.1. Peel off a layer of paint about 13mm from the end of the wire and then thread it through the holes and tighten the bolts or use a cosse pin (for connection B).
 - 2.2. Connect the cable to the appropriate size head cos wire before connecting the Capacitor (for fig C connection).
3. Connection of Y-D induction starting motor:

Without proper wiring as shown in the picture below, a condenser may be destroyed.
4. Opening at no-load

If only a capacitor is connected, it can be damaged by degradation destruction due to effects of excessive leading power factor, over voltage and harmonics. Connection shall be made in order for a capacitor to be isolated at the same time when load is isolated from the power. In addition, when several capacitor are installed, it is recommended to control the number of capacitors in operation by installing a switch according to load capacity and power factor.
5. Problems associated with installation exceeding power factor or capacity As installation exceeding power factor (100%) may cause excessive voltage increase due to negative voltage drop by leading power factor, it is recommended that the capacitor shall be installed at 90-95% of power factor.
6. Disconnect the connection
 - 6.1. Before disconnecting the lead from the capacitor, the capacitor must be disconnected from the mains for more than 3 minutes. Need to measure the voltage across the capacitor before removing the lead from the capacitor.
 - 6.2. When the discharge resistance of the capacitor is damaged, it will be discharged through the grounded discharge rod by someone with a high level of electrical expertise.